APPARATUS AND METHODS FOR IMPARTING GROUTED EDGE APPEARANCE TO FLOOR COVERINGS MODULES DURING INSTALLATION

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims priority to United States provisional patent application serial no. 60/177,231, filed January 20, 2001, entitled "Hand Apparatus for Imparting Grouted Edge Appearance to Tile Face Floorcoverings," which is incorporated herein by reference.

FIELD OF THE INVENTION

This invention relates to the manufacture and installation of flooring, particular including modular textile face flooring such as flooring modules having a woven, tufted, fusion bonded or other textile fiber face, and to the treatment of such flooring to alter the appearance of portions of the flooring face, such as to impart the appearance of "grout" lines.

BACKGROUND OF THE INVENTION

Modular floor covering having a textile face layer, such as conventional carpet tile and the floor covering described in Patent Cooperation Treaty Patent Application No. PCT/US98/21487 entitled "Floor Covering with Woven Face," can be manufactured with a treatment at the edge of the modules that results, upon installation, in floor covering that appear to have "grout lines" between adjacent modules. Techniques for accomplishing such appearance during manufacture are disclosed in U.S. Provisional Patent Application Nos. 60/130,795 entitled "Modular Floor Covering Edge Treatment" and 60/148,043 entitled "Modular Floor Covering Edge Treatment and Machine and Method for Making Same," and Patent Cooperation Treaty Patent Application No. PCT/US00/01717 entitled "Modular Floor Covering Edge Treatment," all of which applications are incorporated herein by this reference. Because of the need to cut floor covering modules to shapes required to conform to the floors where such modules are

installed, and the need to cut the floor covering in roll goods or in broadloom installations, it is desirable to be able to impart such a grouted edge treatment to floor covering in the field during installation.

SUMMARY OF THE INVENTION

This invention makes it possible to impart a "grouted edge" appearance to the face of a floor covering in the field during installation of the floor covering. An energy source for produce relatively focused energy, which can be a heat source such as a hot air gun, is mounted on a carriage. If a hot air gun is used, air gun is delivered through a tip shaped to heat a peripheral portion of the floor covering. Rollers on a lower portion of the carriage provide alignment and control for directing the heat or other energy to the desired portion of the floor covering while moving the carriage relative to the floor covering.

Utilizing this invention to install floor covering modules with a "grouted edge" appearance, installers install both full size modules manufactured with such an appearance and portions of such modules field cut to sizes necessary for a particular installation. After cutting modules to fit, this invention is used at the installation site to treat the module faces adjacent to the field-cut edges to match the "grouted edge" appearance of the manufactured edges.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a side elevation view of a hand apparatus including a hot air gun for imparting a grouted edge appearance to floor coverings.

Figure 2 is a perspective view of the apparatus of Figure 1 showing the tip of the hot air gun treating a floor covering.

Figure 3 is a perspective view showing an arm, roller, guide roller, base plate and hot air gun of the apparatus of Figure 1.

Figure 4 is a perspective view showing a stanchion, fasteners, and handle of the apparatus of Figure 1.

Figure 5 is a rear elevation schematic view of the apparatus of Figure 1.

Figure 6 is a top elevation schematic view of the base plate, arms and handle of the apparatus of Figure 1.

DETAILED DESCRIPTION

As is depicted in the accompanying figures, this invention is an apparatus 8 for mounting a hot air gun 22, such as, for example, a Leister Hot Air Welder model number 1G3, available from Heely Brown Company, Inc., Atlanta, Georgia, United States of America. The hot air emerges from a tip 24 having an orientation making it possible to position the tip 24 above a floor covering module immediately adjacent to the module edge. A base plate 10 rests on top of the face of floor covering 12 to be treated on rollers 14 that contact the floor covering 12 and thereby provide first reference structure for maintaining a selected height of the heat gun above the floor covering face. Second reference structure for maintaining a selected relationship between the heat gun and the edge of the floor covering 12 is provided by guides in the form of two arms 16 that are adjustably mounted to project horizontally from base plate 10 by an amount that can be adjusted. Each arm 16 terminates in a leg 18 projecting down, which in turn terminates in a bearing such as a guide roller 20 that bears against the edge of floor covering 12 being treated. The guide rollers 20 working in cooperation with the rollers 14 provide control and stability so that an operator can efficiently impart hot air to the floor covering 12 in a predetermined area, such as a narrow portion or strip of the face of the floor covering adjacent to the edge of the flooring covering.

The hot air gun 22 is adjustably mounted on base plate 10 in a manner that positions the tip 24 of hot air gun 22 immediately above floor covering 12 and adjacent to the edge 26 of floor covering 12. Such a mounting can utilize a sloping gusset or carriage 28 bolted to stanchion 30 with adjustable fasteners 32 permitting adjustment in the height of hot air gun 22 above floor covering 12. A handle 34 affixed to stanchion 30 can be useful in operating this apparatus. A heater bracket 36 adjustably attaches the hot air gun 22 to the stanchion 30.

Operation is accomplished by positioning the guide roller 20 against the edge 26 of floor covering 12 so that tip 24 of gun 22 is immediately above the

surface of floor covering 12 to be treated. Then, with hot air gun 22 on, the apparatus is moved along the edge 26 at a rate resulting in the desired treatment of floor covering edge 26.

As will be appreciated by those skilled in the art, numerous variations in the details of the apparatus of this invention and its use can be made without departing from the scope and spirit of the invention and the following claims. For instance, other heat sources could be used instead of the hot air gun described as part of the illustrative embodiment of the invention described above and illustrated in the Figures. Some of such potentially usable energy sources are described in Patent Cooperation Treaty Application No. PCT/US00/01717 mentioned above and incorporated herein by reference. For instance, a heated tip of metal or other appropriate material could be brought in contact with the floor covering, or a source of energy in another form could be used, such as a laser or a ultrasonic device. Apparatus that deposits material on the floor covering, such as hot melt compositions or dyes or other colorants, could also be combined with or substituted for the hot air gun or other energy source, so that such compositions or colorants provide or contribute to the alteration in the appearance of portions of the floor covering achieved by use of this invention. Similarly, numerous variations in the configuration of the structure are possible, such as substitution of other structures for the rollers and bearings, or omission of the rollers or bearings and use of structure that simply slides on or against the floor covering, among many other possibilities. Among other structural variations, horizontal adjustment of the position of the hot air gun relative to the edge of the floor covering could be achieved in a structure having fixed rather than adjustable arms but in which the position of the hot air gun is adjustable horizontally.